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ABSTRACT

This paper describes a computer-based task analysis project which uses a pool of behavioral descriptors for defining the activities of a position holder in a particular situation. A selected sample of these descriptors, from a limited pool of descriptors, obtained from a convenience sample was analyzed. Clusters of descriptors with common referents were used to define skill areas, and the descriptors themselves where viewed as potential teaching skills. (Author)

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USING THE LANGUAGE OF TEACHERS TO IDENTIFY BASIC TEACHING SKILLS

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INTRODUCTION

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Direct observation of teaching has been the primary method used to further our understanding of the activities engaged in by teachers. The means for recording direct observations sometimes include impressionistic field notes (Jackson, ; Smith,). More sophisticated have been the numerous and elaborate observational instruments which have been developed (Medly and Mitzel,). Highly quantified rating scales for use in observation have also been created and in fact were the basis of most of the early work on teacher effectiveness (Remmers,). Direct observation can also be accomplished with film , videotape and other electro-mechanical devices. In the focus of these approaches and the instrumentation used we note that the study of teaching is no different than the study of any other phenomena by scientists. All branches of science, in an effort to understand the phenomena with which they are concerned, begin with either simple or refined observational techniques. For example, one can use one's eyes or an electron microscope. Although the study of teaching conforms in its methodology to the approaches in other sciences it need not be so restricted. Unlike the study of stars, mollusks, gamma rays, or stamens, the object of our study is itself capable of observing and describing its own activities. Thus the verbal report of teachers can provide another basis for understanding teaching.

Verbal reports are, justifiably, suspect within scientific circles. Yet some behavior is inherently outside the scope of direct observation. These include behaviors that are private (sexual

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behavior, arguments between people), asocial (criminal or deceitful behavior), or protected by custom (religion), as well as

> ...the vast amount of behavior that does not exist in directly observable form (ideas, attitudes, feelings, beliefs). In addition, it is frequently not feasible on practical grounds to make direct observations of the number and scope that may be desired for a given study, even though it would be possible to do so. (Berelson and Steiner, 1964, p. 29)

In the behavioral sciences a great deal of material is collected from respondents through solicitation of verbal reports. The investigator focusses the attention of the respondent on the questions of what happened, when, where, how, etc. A variety of techniques are used to obtain verbal reports, each with advantages and disadvantages for the investigator of a particular problem. Berelson and Steiner (1964) classify these techniques according to the scheme presented in Table 1.

Insert Table 1 About Here

The sources of information from which we shall later try to derive teaching skills were verbal reports, given within a semi-structured written interview (see Table 1). Initial questions were open-ended though they were specifically directed toward exploring teaching behavior in a particular situation, by a person holding a particular

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position in the educational system. The semi-structured interview used to obtain verbal reports is a compromise:

> ...it acquires some of the advantages of reliability, precision, and control associated with more structured techniques, it sacrifices some of the scope and depth of response obtainable by the less structured interviewing methods. (Berelson and Steiner, 1964, p. 32)

The interviews were conducted as part of a task analysis project headed by F. T. Sobol, of Florida International University and funded by the U.S. Office of Education, Bureau of Educational Personnel Development. The process of task analysis has long been used in military and industrial training, and those techniques have been applied to education in an effort to understand the complexities of teaching and the skills and knowledge needed by teachers.

In the development of this task analysis project Sobol and his colleagues (Richard E. Snow, Stanford University and David C. Berliner, Far West Laboratory) developed a situation by position matrix for analysis of the duties performed by educational personnel. Table 2 presents the matrix listing twenty-four situations and thirty-eight positions. The X in the matrix indicates a cell for which data exists.

Insert Table 2 About Here

Data consists of responses from an interview schedule where the behaviors described by a position holder in a particular situation were carefully analyzed and reduced to simple descriptive sentences.

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For example, if a master teacher were asked to describe what he does in a lecture situation, he might begin by saying "I plan the lesson. Then I write some notes. Then I go over my notes before class. When I enter class I call the students to attention. Then I ..." etc. In the interview situation the respondent is asked to go back and provide details on each behavior he noted, with the sentence used as the unit of analysis. Thus upon probing his responses a master teacher might restate his first sentence about planning in this manner: "Well, to plan the lesson means I set goals for the students. Then I read the teachers curriculum manual. Then I read some books on the subject. Then I write a set of note cards. Then I time how long my lecture might be. Then I ..." etc. In this way each molar sentence in the initial protocol is used as a guide to the more molecular behavior which describes position holders activities in a particular situation. From Table 2 it is noted that not all cells in this situation by position matrix have been filled. Given the limited resources of this particular project data was collected from only a small sample of respondents. Even for those cells where data does exist the sample was one of convenience rather than a random sample. The system would probably require data from a number of individuals holding a particular position until some high percentage of their responses was shown to match those responses already obtained from other respondents. For example, in continuous sampling,

when eighty percent of the respondents descriptions of activities were identical to descriptions of activities already collected from other respondents in that position,

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one would probably want to stop sampling in a particular cell.

The resultant list of simple descriptive behavior takes a form like that presented in Table 3. These are some of the responses obtained from staff teachers (the position) describing activities during various aspects of student diagnosis (the situation). Each of the descriptive statements has been put on a computer card with certain identifiers. This table presents the heart of the retrieval system, a data bank which at this time contains 9000 or more descriptors. A look at this particular sample of descriptors reveals something about a computerized system of this type. It is incredibly uncritical of its pool of descriptors. Some of the descriptors are mundane, others are so general as to be useless. Many seem repetitive, but exact duplicates have been removed from the pool. Items often seem uncritical, sometimes they seem to be silly. Nevertheless, over a large pool of items it is believed that the language of the teachers as they describe their own behavior will yield some new insight into teaching and teachers if appropriate computer programing can be applied to this pool of descriptors. The computerized system is not yet complete. There are a number of search programs, to put descriptors in context, that need to be written. When complete retrieval routines are available, the finished system should be able to:

1) Generate many and some unique observation rating forms given a simple descriptor or key word such as "discipline" or "reinforces."
2) Generate lists of tasks for particular positions, e.g. What tasks does a teacher aide engage in?

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3) Generate lists of tasks appropriate in a given situation, e.g. What needs to be done in small group instructional situations?

4) Help in standardizing job descriptors by pointing out common tasks performed by people with different titles, e.g. master teacher and senior teacher.

5) Help in setting up career ladders for differentiated staffs.

6) Identifying training needs of educational personnel by specifying the behaviors which are engaged in with high frequency.

It is the last noted use of the system which is of concern in this paper. If the descriptive language in the verbal reports of teachers can be used to identify behaviors which are frequently engaged in, perhaps we can obtain some information about which teacher training materials are most in need of development. In addition, scanning the list of descriptors would help us identify some low frequency behaviors which, perhaps, given our value systems, should be engaged in more frequently. Thus we could make certain behaviors more salient by emphasizing them in our training programs. In addition, we might find behaviors engaged in by teachers which need to be extinguished. Thus training materials could be developed to change the frequency of occurance of a behavior so that the rate of its mention goes to zero. We may have created a system in which specification of behaviors for task analysis purposes serves also as a catalog of necessary teaching skills.

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Generating Descriptors of Teaching Behavior

The item pool of about 9000 descriptors, of all variety and of all levels of specificity has been scanned and a frequency count of the words in the item pool has been completed. I have studied the frequency count tables looking first at high frequency behaviors, e.g., those behaviors that teachers say they engage in quite often. I looked also for descriptors that have already been identified as important teaching behavior. Finally, I looked for descriptions of behavior which I thought might be of interest to teacher educators. This list of descriptors is presented as Table 4. In part it represents my biases as I analyzed the frequency count tables. The list is, therefore, quite subjective. One of my goals was to try and identify descriptors or clusters of descriptors which might otherwise be missed as areas for development of skills training modules. Obviously other investigators will need to work with the pool of descriptors to validate my classificatory system and develop their own. Further, we should create computer routines which would provide more empirical procedures for the identification of descriptors which hold interest for teacher trainers. Particularly needed is a context search routine for determining the precise use and referent of a particular descriptor. For example, the descriptor supervises is a high frequency item. But at this point in time we do not know how much supervision is of colleagues, aides or children, and how much of the supervision of children is in the classroom and how much is on the playground. In summary, Table 4 is a subjectively determined list of descriptors (though based on an empirical procedure for the collection of descriptors) without adequate attention to the context in which the descriptors apply.

INSERT TABLE 4 HERE

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With these cautions in mind I would like to point out that many of the items in Table 4 are descriptions of behavior whose importance has been acknowledged by researchers in teacher education. There is a moderately high frequency of teacher behavior called Listens, a topic which Flanders (1972) has devoted attention to in his paper on basic skills. Prepares is a very high frequency descriptor which Morine (1972) has carefully analyzed. Lectures is a frequently occurring descriptor which conforms to popular beliefs about the frequency with which certain teaching methods are used. Praises and Reinforces are mentioned with moderate frequency and have previously been identified as areas of concern in the training of teaching. (Berliner 1968; Berliner 1971). One of the highest frequency descriptors is Questions, a teaching behavior of particular interest among my colleagues at the laboratory (Borg et al, 1970), who have successfully developed minicourses to teach questioning skills.

Though it may be coincidence and/or my subjective filter which selected these particular descriptors, I personally regard them as evidence for the validity of the item pool. The analysis of the language of teachers as they describe their activities provides descriptions of behavior which have been found by analytic and observational systems to be important aspects of teaching. Perhaps some of the other descriptors in Table 4, though less often noted in the study of teaching, are also worth considering as teaching skills.

Cluster 1

One group of descriptors I have identified may be called observing behaviors. These include : Attending; Monitoring; Observing; and Watching. The frequency of these behaviors totals 233, indicating that observing behavior of one sort or another occurs with considerable frequency. A search of the item pool reveals that observing behavior is, in part, used to discover whether or not there is boredom, comprehension, or imitation. This leads to

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some suggestions about training.

If we wish to teach teachers to recognize boredom cues, we might develop training materials or simulations which first provide student boredom cues, e.g., hair combing, yawning, staring out the window, note-passing, doing homework in class, etc. The training materials would first require recognition of boredom cues by a trainee. After recognition training discussions could be held about the frequency and magnitude of boredom cues which are necessary before one makes a judgment that a class of students is, in fact, bored. Some preliminary efforts at training in this area have been completed. Fanslow (196x) used time lapse photography to obtain still photographs of classrooms. Reliable boredom ratings of the classes could be obtained from teachers. Missing, however, is the training in making judgments about boredom and the training in prescriptions about what to do when a class is judged to be bored. Appropriate prescriptions might require the teacher to change the topic, slam a book on the table, talk to the students about what is wrong, etc. Should observation of boredom be valued as a teaching skill, it would appear that training materials could be developed to increase a teacher's skill in recognizing and dealing with boredom.

Observing for comprehension has been experimentally studied by Maccoby and Jecker (196x). These investigators were able to increase the frequency of a teacher's correct identification of students who understood lecture material. Understanding had been empirically determined through testing. By training teachers to look at a student's furrows on the brow, eyes, tilt of the head, etc., an increased ability to recognize comprehension was demonstrated. These preliminary studies could be used to develop skill training materials for the recognition of comprehension in students.

Observing for imitation occurs when a gym teacher, physics teacher in a

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laboratory, or a math teacher wants students to perform a particular process or series of steps. The development of training materials which lead a teacher to understand imitative learning should be feasible.

Some of the observation by teachers is directed toward other teachers. Thus training materials would seem appropriate for the construction of sign systems and rating scales. Training to use observation systems with proven utility could also be part of this training cluster. In addition, and perhaps at an early stage of training, it would seem important to develop in trainees the ability to distinguish between observation and judgment, a task which Boyan (1971) and his colleagues has worked on.

It appears that observing behaviors occur frequently in teaching and that training materials could be developed to make observations in a more skillful manner.

Cluster 2

A group of descriptors I have identified may be called negative teaching behaviors. These include: Admonishes; Criticizes; Denigrates; Depreciates; Disagrees; Disapproves; Punishes; Reprimands; Reproves; and Threatens. The total frequency of these negativistic behaviors is 124. Because some of these behaviors are not socially sanctioned, the interview technique used to obtain these data probably provides an underestimate of the actual frequency of occurrence.

In our culture providing negative comments or critical reactions is often considered to be a personal attack or insult. Yet, it would appear that there is a high frequency of criticizing behavior mentioned by teachers. Could the context and intent of the behavior be analyzed and skill training materials developed? The goal of any such training procedure would be to avoid the perception by the trainee that criticism is insulting. Analysis of the

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behavior of teachers and students to develop functional criticizing behaviors, where ideas may be attacked, but not people, and where criticism is sought by learners rather than shunned.

The behavior of denigrating and depreciating another person leads to a thought about skill training which is not mentioned often enough. Skilled activity is often characterized by the absence as well as the acquisition of behavior. With regard to denigrating and depreciating, training materials should be developed to insure that the frequency of such behaviors is zero. The skill is marked by non-occurence. Perhaps a trainee's experience as the object of such behavior might provide the necessary and sufficient conditions for achieving a zero rate of these behaviors.

Punishment is another area in which a teacher is left to his own resources. Besides some brief educational psychology segment on the "evil" effects of punishment, teacher trainees rarely learn any more about punishing behavior. Should they? Could we design experiences such that the effects of punishment on students is studied in role-playing situations or simulated environments? I believe we should and could design these kinds of experiences, using the work of Kounin (19xx) as a starting point. The result might be a more judicious use of punishment by teachers to accomplish particular ends. The same holds true for reprimanding, threatening, and other negativistic teacher behaviors mentioned above. Since such behaviors will be engaged in, and under some conditions such behavior is functional, we need to explore the procedures which will allow us to develop skilled performance when negative teaching behavior is required. It is probably worth noteing that current critics of the schools, such as Holt (196x) and Rogers (1970), value a teacher's genuine display of negative affect. They wish to insure that the student himself is not the target of such behavior, but they consider it important that a teacher recognize and voice his own anger and disapproval of certain student

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behavior. These clinical recommendations will remain useless until training procedures of proven utility are developed.

Cluster 3

This cluster might be identified as explaining behavior. The descriptors used by the teachers include: Clarifies; Describes; Elaborates; Explains; Familiarizes, Generalizes; Illustrates; Interprets; Orients; Relates; and Synthesizes. The total frequency of these behaviors is very high (555). However, presenting the descriptors as aspects of explaining twists the usual context for a descriptor to suit particular purposes. Thus the true frequency estimate, though high, is not nearly as high as the one reported. It is in these instances where a context routine would be an important aid for working with the 9000 items in the pool of descriptors.

The exploration of the meaning associated with these descriptors requires a philosopher trained in linguistics and logic. A critical analysis of that type might better describe the extensive and intensive meanings of the words and the logical processes which the intensive meanings are associated with. My own limited analysis leads me to believe that a term such as Elaborates differs in a number of ways from a term such as Familiarizes and that these terms differ from Illustrates. To elaborate is to enlarge, amplify, expand, give the fullness of detail. Can we develop better elaborators? Can we provide experiences with content materials which require a trainee to elaborate? Can we distinguish the cues a trainee must attend to in order to know when to elaborate? To familiarize is to help another to know, to get used to, to get the hang of, to become better acquainted with, etc. Are there some critical aspects which familiarization procedures must touch upon? Does it require naming concepts or parts of something? Does it

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mean to present an overview or an advanced organizer? To illustrate means to present examples of, to demonstrate, to give instances, etc. What are the cues a teacher should attend to in order to decide that one or more examples are called for? How can illustration be accomplished best -- that is, what are the critical aspects?

I don't presume to know the answers to these questions and it is premature to decide whether this line of investigation is feasible or desirable. But it is clear to me that some of the words in this cluster are not synonyms of other words in the cluster and that all the descriptors are aspects of explaining. It was precisely the kind of analytic work I am calling for which led Miltz (1971) to develop a training packet on "how to explain." Miltz was a student of N. L. Gage (C. F. Gage, 1972) whose interest in explaining behavior is long-standing. The result of the rather simple training procedure which was developed, consisting of five lessons on various components of explaining, was to significantly increase a teacher's ability to explain as measured by student achievement. It seems likely that if the global concept of explaining can be developed into effective training materials for teachers, other related descriptors can also be built into training modules. Since a good deal of a teacher's time is spent in explaining or related activities, and such activities are clearly important to student learning, the challenge of developing teaching training materials in this area is particularly stimulating.

Cluster 4

Another clustering of descriptors may be called organizing behaviors. This follows the terminology adopted by Rosenshine (1971) and used in the development of protocol materials by Berliner (1971). It includes the descriptors Emphasizes; Organizes; Reviews; and Summarizes. The combined frequency count of these behaviors was 262. These behaviors may be easily translated from protocol materials to training materials. Related organizing behaviors

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have also been identified and the various aspects of teaching which have been associated with the concept of lesson organization may form a cluster for which skill training is appropriate.

The use of the term "organizes" was found to have another quite common usage when the context in which it appears was examined. This context was more managerial in orientation and is discussed in Cluster 5.

Cluster 5

Managerial skills are the focus of this cluster. The descriptors which make up this area include: Coordinates; Directs; Leads; Manages; Orders; Organizes; Prepares; Problem; Records; Schedules; and Supervises. The total frequency with which teachers mention these terms exceeds 1300. Managerial behaviors are quite definitely high frequency behaviors for teachers.

The term "problem" is included in the above list of behaviors though it is a noun rather than a verb. Problems imply problem-solving, a managerial behavior, and so I have included this descriptor in this cluster. All these descriptors are thoroughly discussed in schools of public and business administration. For example, the training of executives, whether pre-service or in-service, is often devoted to building skills in leadership. Would the business community, with its reputation for hard-headed decision making, engage so heavily in training in this area if it did not lead to benefits? Record keeping is virtually a specialized scientific area in programs of business administration yet I know of no teacher training institution which spends training time on such behaviors.

Problem-solving approached through synectics games (Synectics, 19xx) has long been taught by management consultants to executives. Only recently was the relevance of those training programs pointed out to educators. Scheduling and Supervision are also areas of heavy concentrations of training time in

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business administration. Preparation as a management skill for teachers is discussed by Morine (1972), whose careful analysis and statement of training objectives are an example of what could be done with just one of the descriptors in this managerial cluster.

If these descriptors are convincing evidence that managerial skills are a necessary part of teaching, then I believe that we may look to our colleagues in the business world for training materials which may be adapted to the educational world.

Additional Clusters

There are a number of smaller clusters of descriptors which may be identified. One such cluster is an evaluative cluster which includes the descriptors: Diagnoses; Evaluates; Judges; Questionnaires; and Tests. The frequency of these behaviors (in the case of questionnaires we may regard the behavior as construction of questionnaires) is quite high. However, most teacher training programs do regard some of these behaviors as teaching skills and provide some kinds of training experience in these areas.

Another cluster of descriptors may be focused on group activities, given the high frequency of the term Groups. Clearly a good deal of teaching behavior takes place in a small group setting and specific skills for teaching in this manner are probably required. This is a case where the pool of descriptors needs to be coupled with analytic procedures for identification of the precise skills required by teachers.

Another set of descriptors seems to be concerned with motivation. These include: Helps; Involves; Motivates; Prescribes; Stimulates; and Suggests. Once again, I believe a careful analysis of these and other related descriptors would produce a list of behaviors which are clues in the search for teaching skills. What is the psychology of helping? Under what conditions would a

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learner perceive aid by another as a positive event and under what conditions might it be perceived as a negative event? Since teachers claim to spend a considerable amount of time helping others, it might be appropriate to study the process. Some aspects of a teacher's motivating behavior is covered in most teacher training programs. However, most of the teacher's exposure to these areas takes place in an educational psychology course, primarily by means of prose material. Surely we can do better, through protocols, skill training modules or simulations.

A final cluster of descriptors, already part of the armormentarium of teacher trainers, is concerned with giving positive responses. The descriptors in this cluster include: Approves, Empathizes; Encourages; Praises; Reinforces; Rewards; and Supports. Some of these descriptions of behavior are of acknowledged importance. But what is the psychology of encouragement? Can we create training materials which aid a teacher to provide encouragement and also allow the teacher to be perceived as encouraging by the student? If an attempt to create such materials was successful, then we could regard encouraging behavior as a teaching skill.

Conclusion

This paper has described a computer based task analysis project which uses a pool of behavioral descriptors for defining the activities of a position holder in a particular situation. A selected and probably biased sample of these descriptors, from a limited pool of descriptors, obtained from a convenience sample, was analyzed by this writer. Clusters of descriptors with common referents were used to define skill areas and the descriptors themselves were viewed as potential teaching skills.

The entire process of skill identification could become more empirical, with the development of more sophisticated computer routines. However, the

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process will remain relatively free of the influence of teaching models. Thus Flanders (1972), McDonald and Nalin (1972), and others who derive conceptions of teaching skills from models of teaching will perhaps find this method of generating skills somewhat limited. However, let us remember that:

> Models are undeniably beautiful, and a man may justly be proud to be seen in their company. But they may have hidden vices. The question is, after all, not only whether they are good to look at, but whether we can live happily with them.
>
> (Kaplan, 1964, p. 288)

Models must fit data rather than vice versa. This item pool, as it grows and is refined, could be used not only as a means for the generation of skills, but as a validation for the models proposed by researchers in teacher education.

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Table 1. Characteristics of Various Methods for Obtaining Verbal Reports

Method of Obtaining Verbal Report	Control over Investigators Question	Control over Respondents Answer	Degree of precision, reproduce-ability	Bredth and depth of potential response
Free Association (e.g. the psychiatric interview)	LOW	LOW	LOW	HIGH
Unstructured or in-depth Interview	↑ ↓	↑ ↓	↑ ↓	↑ ↓
Semi-structured Interview	↑ ↓	↑ ↓	↑ ↓	↑ ↓
Structured Interview (e.g. the checklist questionnaire)	↑ ↓	↑ ↓	↑ ↓	↑ ↓
Formal Tests	HIGH	HIGH	HIGH	LOW

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Table 2. Situation X Position Matrix for Task Analysis of Educational Positions

SITUATION \ POSITION	MASTER TEACHER	SENIOR TEACHER	STAFF TEACHER	ASSOCIATE TEACHER	LECTURER	INTERN	EXTERN	STUDENT TEACHER	RESOURCE TEACHER	RESEARCH TEACH	TEAM LEADER	TEAM TEACHER	TEACHING ASSISTANT	INSTRUCTIONAL AIDE	DEPT HEAD	ADMINISTRATOR	CURRICULUM DEVELOPER	COUNSELOR	ADVISOR	CONSULTANT	MEDIA SPECIALIST	GRAPHIC SPECIALIST	SERVICE SPECIALIST	LIBRARIAN	TECHNICIAN	SECRETARY	CLERICAL AIDE	COMMUNITY RESOURCE	VOLUNTEER	PARENT	STUDENT	PRINCIPAL	VICE PRINCIPAL	SUPERINTENDENT	SUPERVISOR	INSTRUCTOR	SCHOOL BOARD
CLASSROOM MANAGEMENT																																				
LARGE GROUP INSTRUCTION			X					X				X		X																						
SMALL GROUP INSTRUCTION			X	X				X				X								X															
LECTURE			X	X																															
TUTORING			X	X				X				X								X															
INDEPENDENT STUDY			X					X				X		X						X															
PLANNING AND PREPARATION			X	X				X				X		X						X															
STUDENT DIAGNOSIS		X	X					X									X																		
STUDENT REMEDIATION			X														X																		
COUNSELING			X												X		X									X									
EXTRA-CURRICU & CLUBS			X												X																				
PARENT CONFERENCES			X					X							X		X					X				X									
TEACHING TEACHERS	X	X	X	X				X							X		X			X															
DEPT & COMMITTE MEETS		X	X	X				X																											
SCHOOL GOVERNANCE		X													X																				
RESEARCH	X														X		X			X		X				X									
CURRICULAR INNOVATION	X	X	X	X													X			X															
CONTINUED EDUCATION								X																											
COMMUNITY RELATIONS								X							X		X			X															
PROFESSIONAL SERVICE																	X																		
MATERIAL RESOURCES																																			
REVIEW																																			
PRESENTATION																																			
STUDENT PRESENTATION																																			

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Descriptor Number			Position and Situation code
795.	0875	EVALUATES PROGRESS WITH S AT APPROPRIATE INTERVALS	DGSF1
796.	0876	EVALUATES S PERFORMANCE FREQUENTLY	DGSF1
797.	0877	USES COMPREHENSIVE PROCEDURE TO EVALUATE S PERFORMANCES	DGSF1
798.	0878	DEVELOPS REALISTIC STANDARDS OF ACHIEVEMENT WITH EACH S	DGSF1
799.	0879	INFORMS S OF THE BASIS FOR EVALUATION	DGSF1
800.	0880	ELICITS FEEDBACK TO REVEAL S UNDERSTANDING OF LESSON	DGSF1
801.	0881	HELPS S RECOGNIZE LEARNING DIFFICULTY	DGSF1
802.	0882	COMMENTS ON CAUSES OF UNSATISFACTORY PROGRESS	DGSF1
803.	0883	ASCERTAINS THAT S HAVE ORGANIZED WORK PLAN	DGSF1
804.	0884	GIVES AND EVALUATES OWN PERSONAL VIEWS	DGSF1
805.	0885	USES EXERCISES OR APPLICATIONS TO EVALUATE UNDERSTANDING	DGSF1
806.	0886	EVALUATES VALIDITY OF S UTTERANCE	DGSF1
807.	0887	EVALUATES PROPRIETY OF S UTTERANCE	DGSF1
808.	0893	EVALUATES S SUBSTANTIVE RESPONSE	DGSF1
809.	0894	RATES S RESPONSE EQUIVOCALLY	DGSF1
810.	0895	EVALUATES RESPONSE AMBIGUOUSLY	DGSF1
811.	0897	CONVEYS UNDERSTANDING OF S STATEMENT	DGSF1
812.	0898	CRITICIZES S	DGSF1
813.	0901	CRITICIZES DESTRUCTIVELY	DGSF1
814.	0902	IS HYPERCRITICAL, FAULT-FINDING	DGSF1
815.	0904	NOTES ACCURACIES, NOT MISTAKES	DGSF1
816.	0905	NOTES MISTAKES, NOT GOOD POINTS	DGSF1
817.	0906	ENCOURAGES S TO EVALUATE THEIR OWN PERFORMANCES	DGSF1
818.	0907	DIRECTS S EVALUATION OF OWN PERFORMANCE	DGSF1
819.	0908	ENCOURAGES S TO WRITE THEIR OWN TESTS	DGSF1
820.	0909	ENCOURAGES S TO FIND BETTER WAYS TO MEASURE OWN PROGRESS	DGSF1
821.	0910	COOPERATES WITH S IN EVALUATION OF PROGRESS	DGSF1
822.	0911	WORKS WITH S TO RELATE INDV PERFORMANCE TO CLASS GOALS	DGSF1
823.	0912	QUESTIONS CLASS ABOUT ASSIGNED TEXTBOOK CONTENT	DGSF1
824.	0913	APPROVES OF S PERFORMANCE ON HOMEWORK	DGSF1
825.	0915	USES TEXT EFFECTIVELY	DGSF1
826.	0916	USES TEST TO MEASURE S PROGRESS	DGSF1
827.	0917	INNOVATES EVALUATION INSTRUMENTS	DGSF1
828.	0924	REVIEWS MAJOR POINTS WITH S	DGSF1

Table 3. Example of descriptors in the item pool

Table 4. Selected List of Descriptors and Their Frequency of Use

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(15)	Admonishes	(27)	Involves	(125)	Schedules
(34)	Approves	(16)	Judges	(30)	Stimulates
(91)	Attends	(55)	Leads	(83)	Suggests
(33)	Clarifies	(159)	Lectures	(13)	Summarizes
(64)	Coordinates	(40)	Listens	(150)	Supervises
(48)	Criticizes	(12)	Manages	(31)	Supports
(3)	Denigrates	(47)	Monitors	(10)	Synthesizes
(1)	Depreciates	(17)	Motivates	(238)	Tests
(31)	Describes	(82)	Observes	(11)	Threatens
(26)	Diagnoses	(41)	Orders	(13)	Watches
(121)	Directs	(23)	Orients		
(6)	Disapproves	(83)	Organizes		
(7)	Disagrees	(31)	Praises		
(7)	Elaborates	(197)	Prepares		
(40)	Emphasizes	(15)	Prescribes		
(1)	Empathizes	(307)	Problem		
(238)	Encourages	(12)	Punishes		
(258)	Evaluates	(307)	Questions		
(142)	Explains	(21)	Questionnaires		
(22)	Familiarizes	(145)	Records		
(16)	Generalizes	(31)	Reinforces		
(288)	Groups	(219)	Relates		
(245)	Helps	(20)	Reprimands		
(8)	Illustrates	(2)	Reproves		
(44)	Interprets	(125)	Reviews		
		(8)	Rewards		